

Detailed Action

This office action is a response to applicant's communication submitted February 10, 2009 wherein claim 1 is amended and claims 2-3 are cancelled. This application is a national stage application of PCT/GB03/05464, filed December 16, 2003, which claims priority to foreign applications GB0229443.7, filed December 18, 2002, and PCT/GB03/01795, filed April 25, 2003.

Claims 1, 4-9, and 11-14 are pending in this application.

Claims 1, 4-9, and 11-14 as amended are examined on the merits herein.

Applicant's amendment, submitted February 10, 2009, with respect to the rejection of instant claims 1, 2, 5-9, 11, and 12 under 35 USC 103(a) for being obvious over Adams et al. in view of Sanghvi et al., has been fully considered and found to be persuasive to remove the rejection as the claims have been amended to require a specific activator not taught by Sanghvi et al. Therefore the rejection is withdrawn.

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive for reasons discussed above, as Applicant's amendment has overcome all grounds of rejection of record in the final office action. Therefore the finality of that action is withdrawn.

The following new grounds of rejection are introduced:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4-9, and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams et al. (Reference of record in previous action) in view of Sinha et al. (US pre-grant publication 2006/0041114, cited in PTO-892, also published as WO2003/004512, included with PTO-892)

Adams et al. discloses a method for making amino-functionalized polystyrene resins. (p. 3706, scheme 1) These resins swell to up to 8-9 mL per gram of dry weight in organic solvents such as THF, chloroform, dichloromethane, and dimethylformamide. (p. 3709, table 2, see especially note b) Note that polystyrene has a volume of about 1 mL per gram of dry weight, so a final volume of 8-9 mL/g indicates a swell ratio of about 7-8. These solid supports can be used for phosphoramidite-mediated DNA synthesis. (p. 3710, right column paragraph 2, p. 3712 right column paragraph 2) polymer 8 (p. 3708, top of page) is reasonably considered to be a functionalized polystyrene according to claim 5. Adams et al. does not disclose a method of synthesizing oligonucleotides on this resin using an activator, in particular the activators recited in instant claim 1.

Sinha et al. discloses an activator compound having the same structure recited in instant claim 1, which promotes condensation between a nucleoside phosphoramidite

and a nucleoside monomer. (p. 1 paragraph 0006) The activators are preferably used to carry out phosphoramidite coupling in the presence of organic bases and a solvent such as dimethylformamide or 1-methyl-2-pyrrolidinone. (p. 1 paragraphs 0007-0008) The organic base can be an azaheterocyclyl compound, which is defined to include N-alkylimidazoles such as N-methylimidazole, as well as pyridine and N-methylpyridine. (p. 5 paragraphs 0027 and 0030) Sinha et al. discloses a method of solid phase synthesis of an oligonucleotide wherein the oligonucleotide is synthesized on a solid phase support using the disclosed activators and then released from the support when the synthesis is complete. (p. 7 paragraph 0049 - p. 8 paragraph 0053)

It would have been obvious to one of ordinary skill in the art at the time of the invention to perform the synthetic methods of Sinha et al. in the solid phase using the swellable resins described by Adams et al. One of ordinary skill in the art would have been motivated to combine the references in this manner because Adams et al. discloses that the resins described therein can be used as a solid support for phosphoramidite-mediated synthesis. One of ordinary skill in the art would reasonably have expected success because performing phosphoramidite-mediated synthesis on a solid support is a common technique in the art and well within the skill of one of ordinary skill in the art.

Therefore the invention taken as a whole is *prima facie* obvious.

Conclusion

No claims are allowed in this application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIC S. OLSON whose telephone number is (571)272-9051. The examiner can normally be reached on Monday-Friday, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia Anna Jiang can be reached on (571)272-0627. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Eric S Olson/
Examiner, Art Unit 1623
2/17/2009